



US006288935B1

(12) **United States Patent**
Shibata et al.

(10) **Patent No.:** **US 6,288,935 B1**
(45) **Date of Patent:** **Sep. 11, 2001**

(54) **NONVOLATILE SEMICONDUCTOR
MEMORY DEVICE FOR STORING
MULTIVALUED DATA**

(75) **Inventors:** **Noboru Shibata; Tomoharu Tanaka,**
both of Yokohama (JP)

(73) **Assignee:** **Kabushiki Kaisha Toshiba, Kawasaki**
(JP)

(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** **09/664,546**

(22) **Filed:** **Sep. 18, 2000**

(30) **Foreign Application Priority Data**

Sep. 20, 1999 (JP) 11-266085

(51) **Int. Cl.⁷** **G11C 16/04; G11C 16/06**

(52) **U.S. Cl.** **365/185.03; 365/185.22;**
365/185.24

(58) **Field of Search** 365/185.03, 185.12,
365/185.17, 185.21, 185.22, 185.24

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Primary Examiner—Son Mai

(74) *Attorney, Agent, or Firm*—Banner & Witcoff, Ltd.

(57) **ABSTRACT**

A multivalued memory has data of state "0", state "1", state "2", and state "3" whose threshold voltages increase in that order. In a first-page write operation, a memory cell whose data is in state "0" is brought into state "1". In a second-page write operation, a memory cell whose data is in state "0" is brought into state "3" and a memory cell whose data is in state "1" is brought into state "2". As a result, in reading the data, the data on the first page can be read in two read operations. Furthermore, the operation of writing the data onto the second page can be made faster, because a high initial write voltage can be used.

16 Claims, 22 Drawing Sheets

